

ABSTRACT OF THE INVENTION

A macroscopic version of the Scanning Force Microscope is described. It consists of a cantilever under the influence of external forces, which mimic the tip-sample interactions. The use of this piece of equipment is threefold. First, it serves as direct way to understand the parts and functions of the Scanning Force Microscope, and thus it is effectively used as an instructional tool. Second, due to its large size, it allows for simple measurements of applied forces and parameters that define the state of motion of the system. This information, in turn, serves to compare the interaction forces with the reconstructed ones, which cannot be done directly with the standard microscopic set up. Third, it provides a kinematics method to non-destructively measure elastic constants of materials, such as Young's and shear modules, with special application for brittle materials.